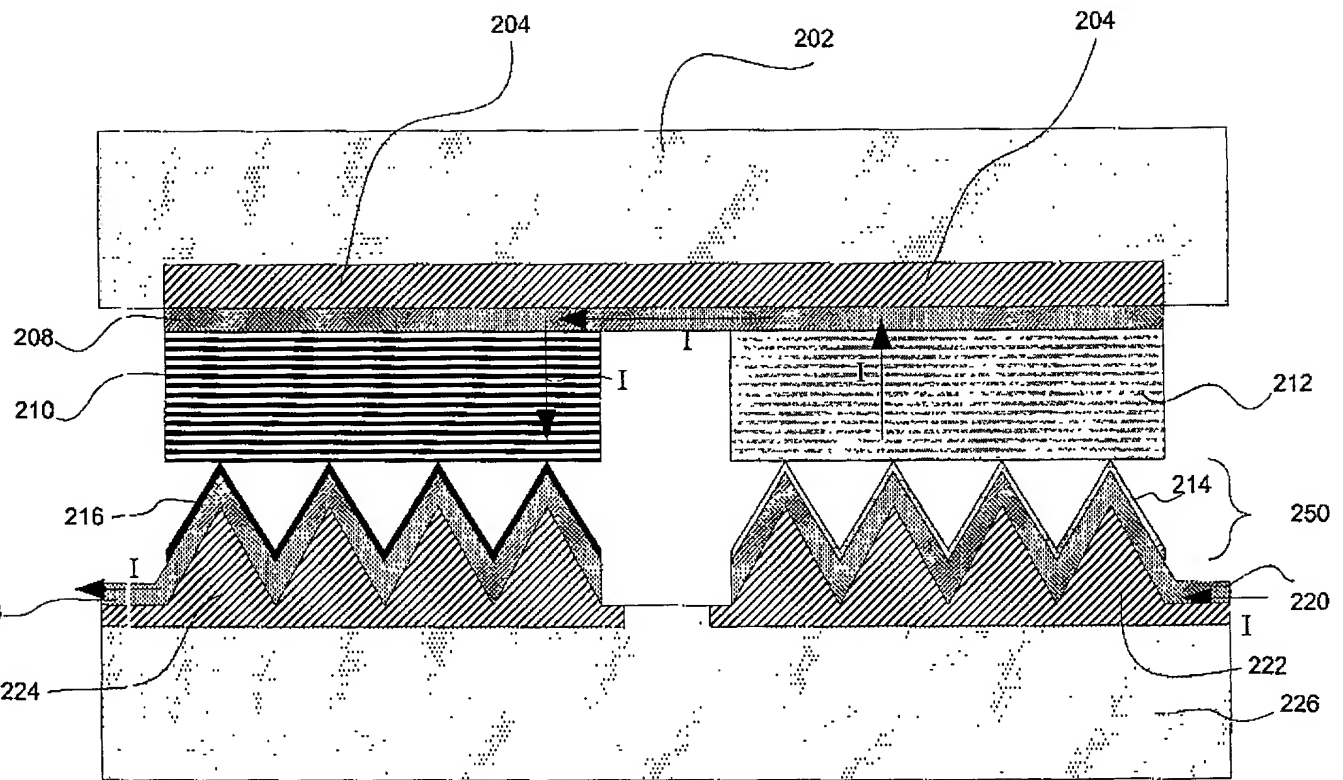


100  
Figure 1

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(Prior Art)

US 2014/0111111 A1  
FIG. 2  
Thermoelectric Cooler  
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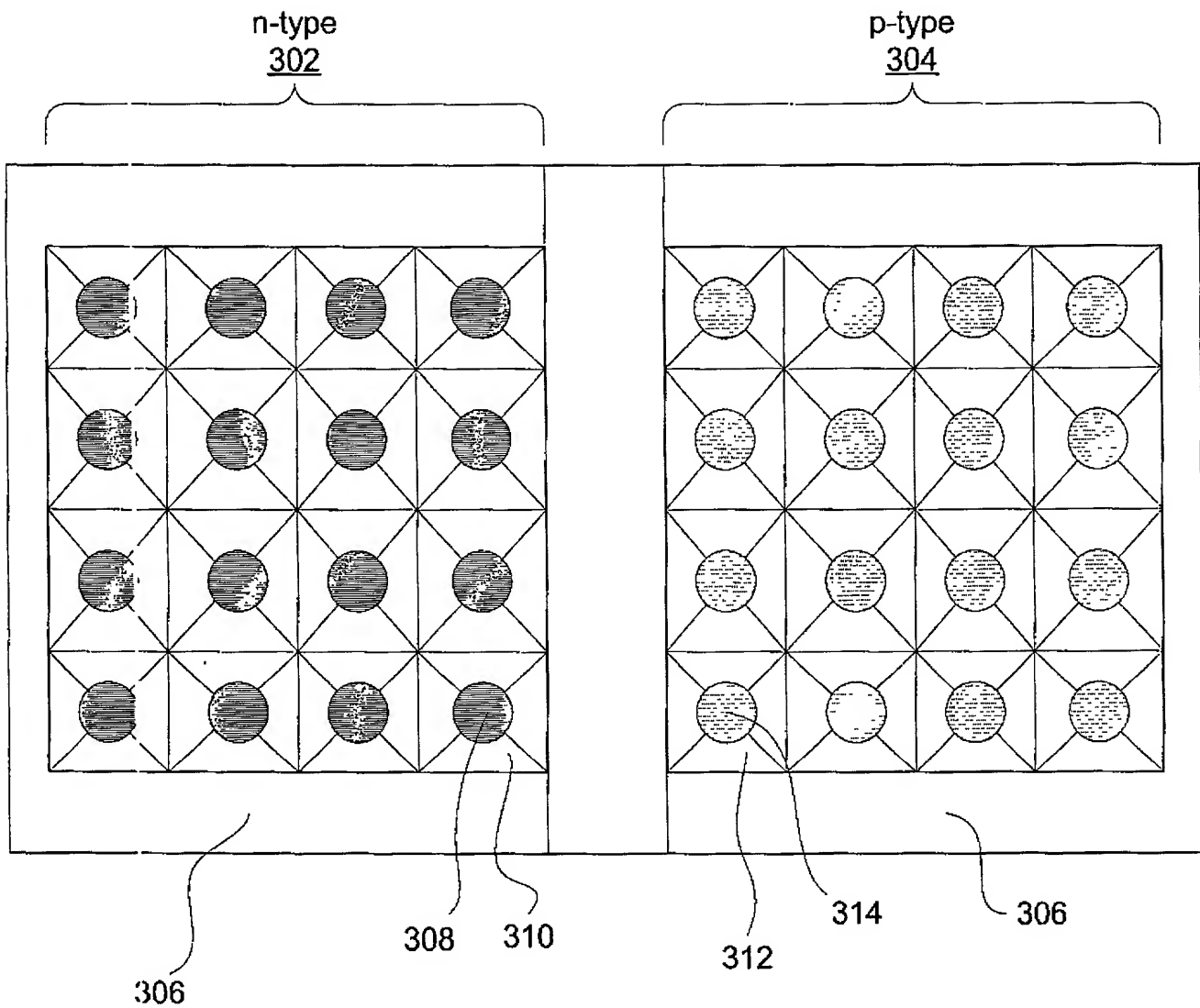


200  
Thermoelectric Cooler

## Figure 2

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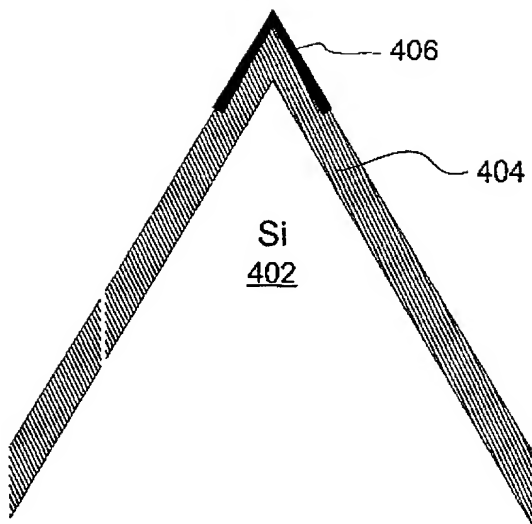
FIG. 3 is a schematic diagram of an integrated quantum cold point cooler 300. The device includes an n-type region 302 and a p-type region 304. The n-type region 302 contains a 4x4 grid of quantum dots 308, which are represented by shaded circles. The p-type region 304 contains a 4x4 grid of quantum dots 312, which are represented by white circles. The quantum dots are arranged in a square lattice pattern. The entire device is enclosed in a rectangular frame 306. The n-type region 302 and p-type region 304 are separated by a vertical line 310. The quantum dots 308 and 312 are arranged in a 4x4 grid pattern within their respective regions. The labels 302, 304, 306, 308, 310, 312, and 314 are used to identify the various components of the device.



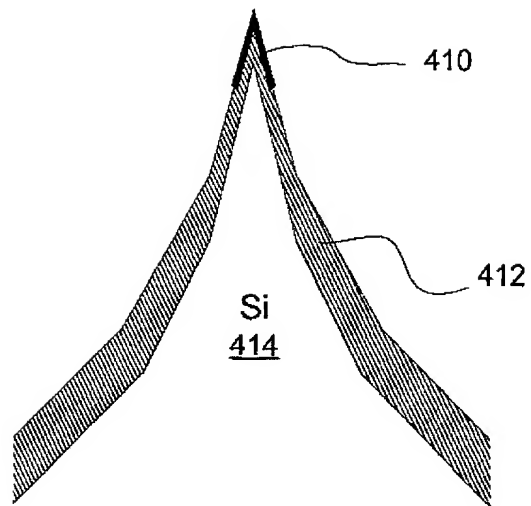
300

## Figure 3

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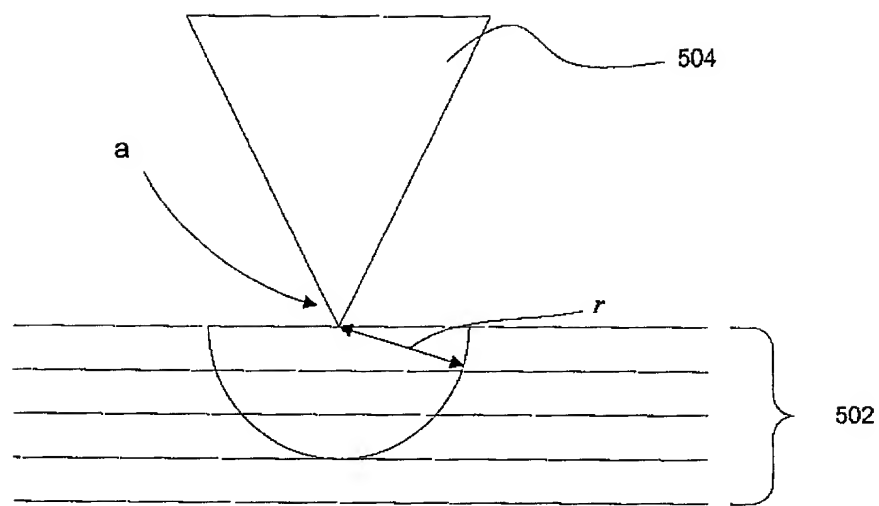
**Figure 4A**  
AUS920010314US1



**Figure 4B**  
AUS920020314US1

## Figure 4

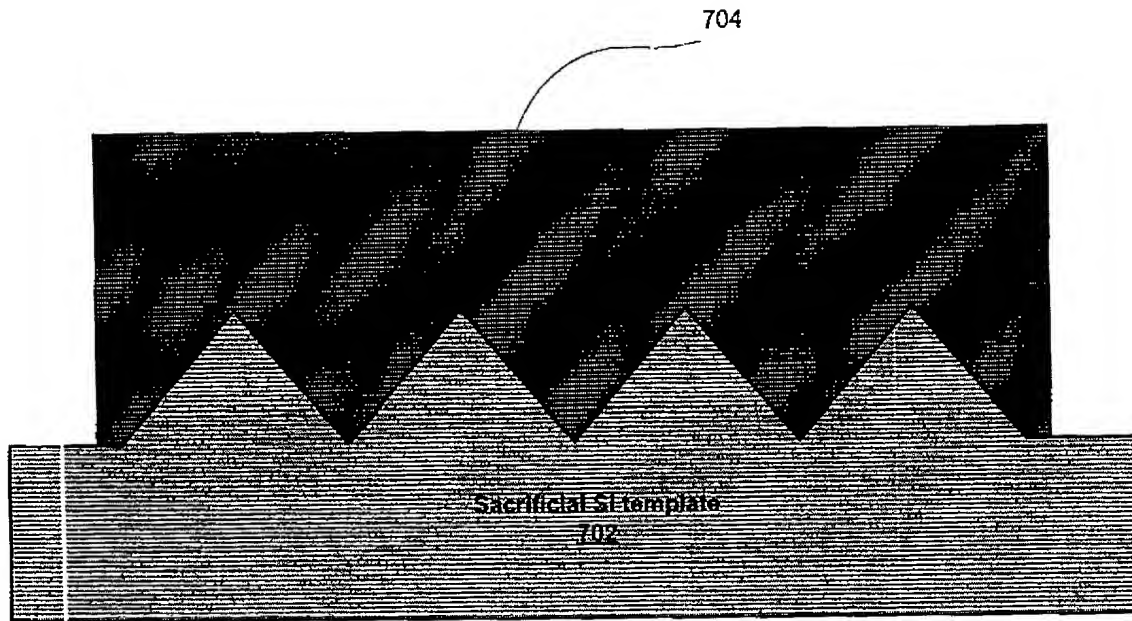
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# Figure 5

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 Coolers  
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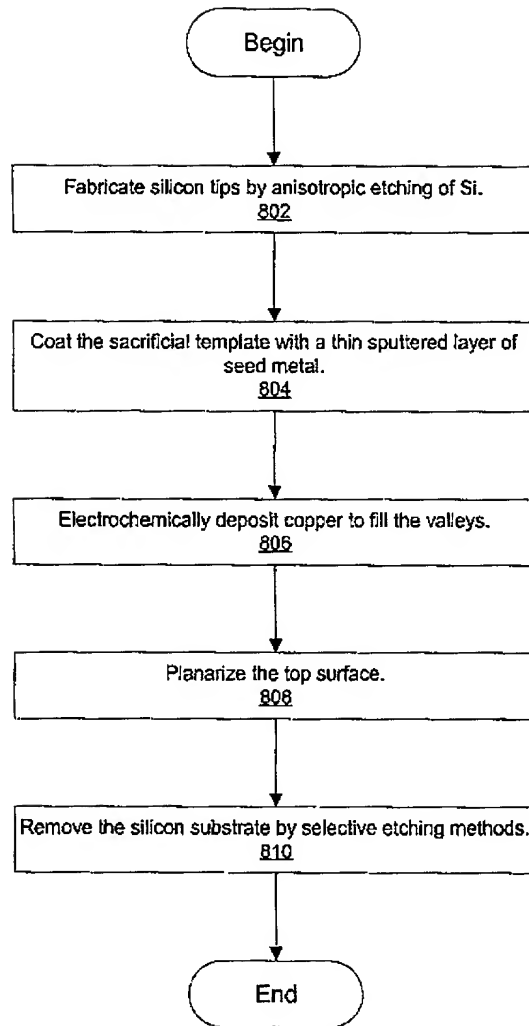




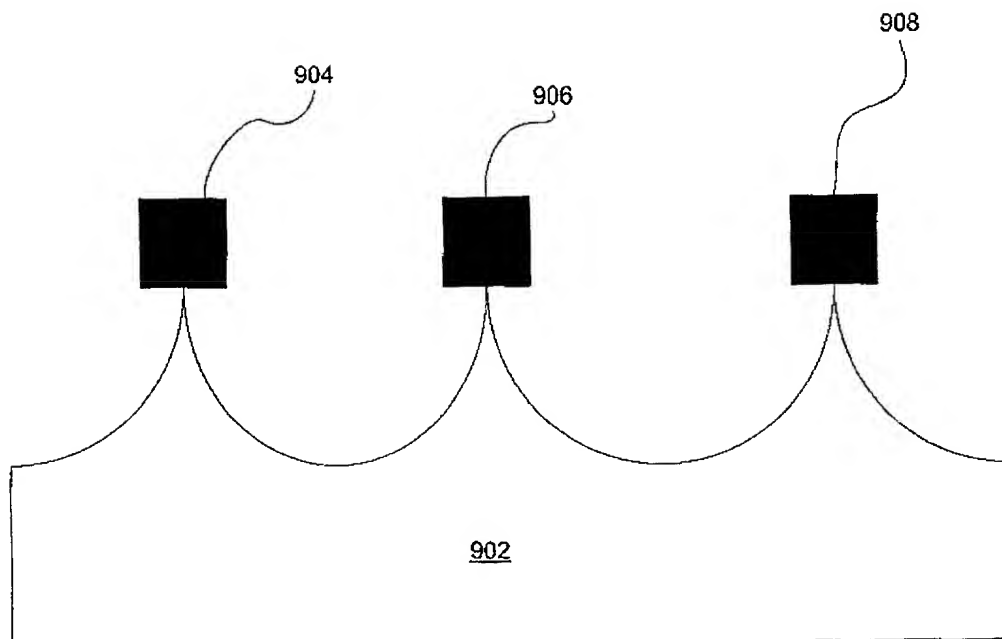
## Inverse Templates

### Figure 7

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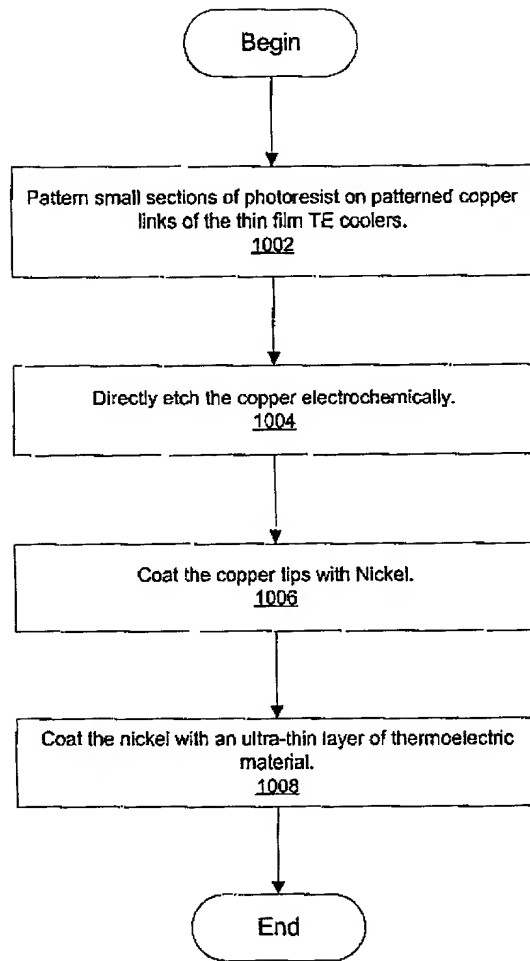
**Figure 8**



## Electrochemical etching of patterned copper

### Figure 9

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**Figure 10**

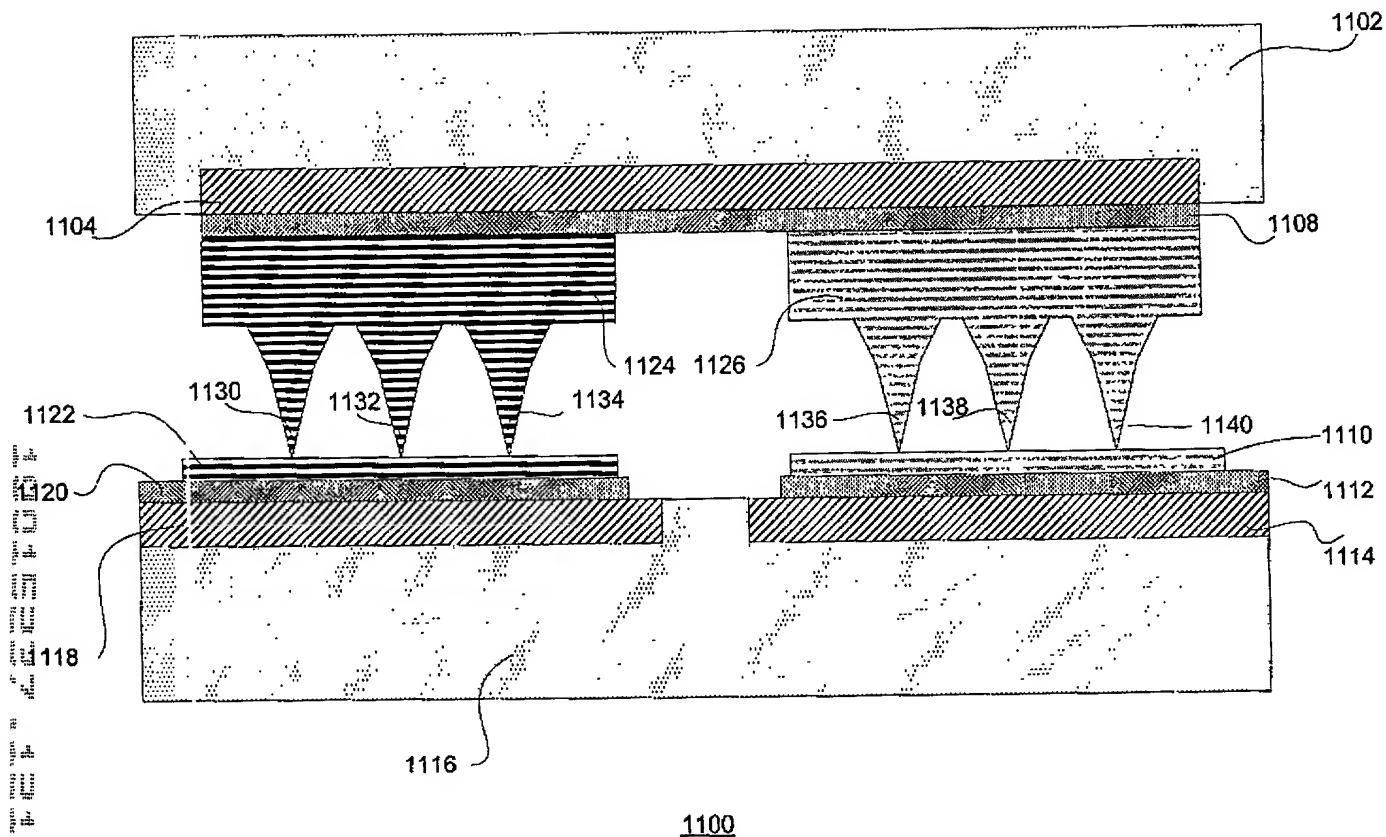


Figure 11

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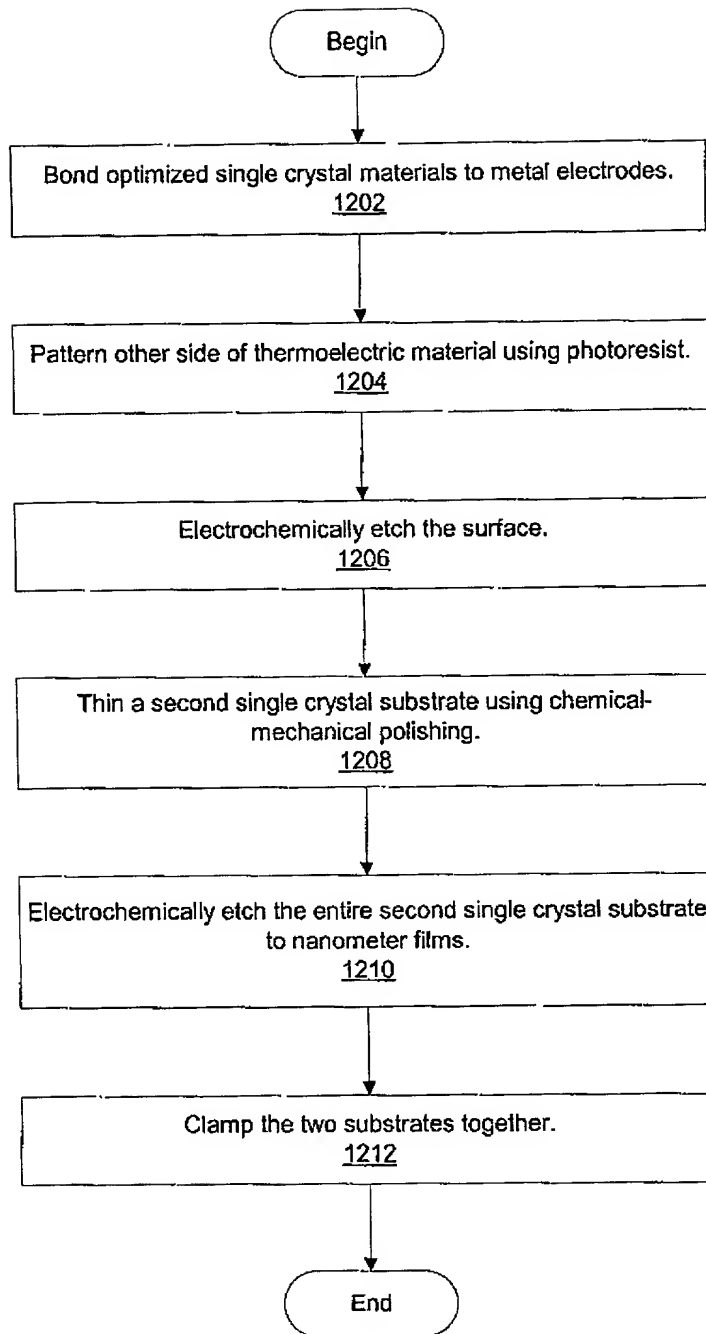
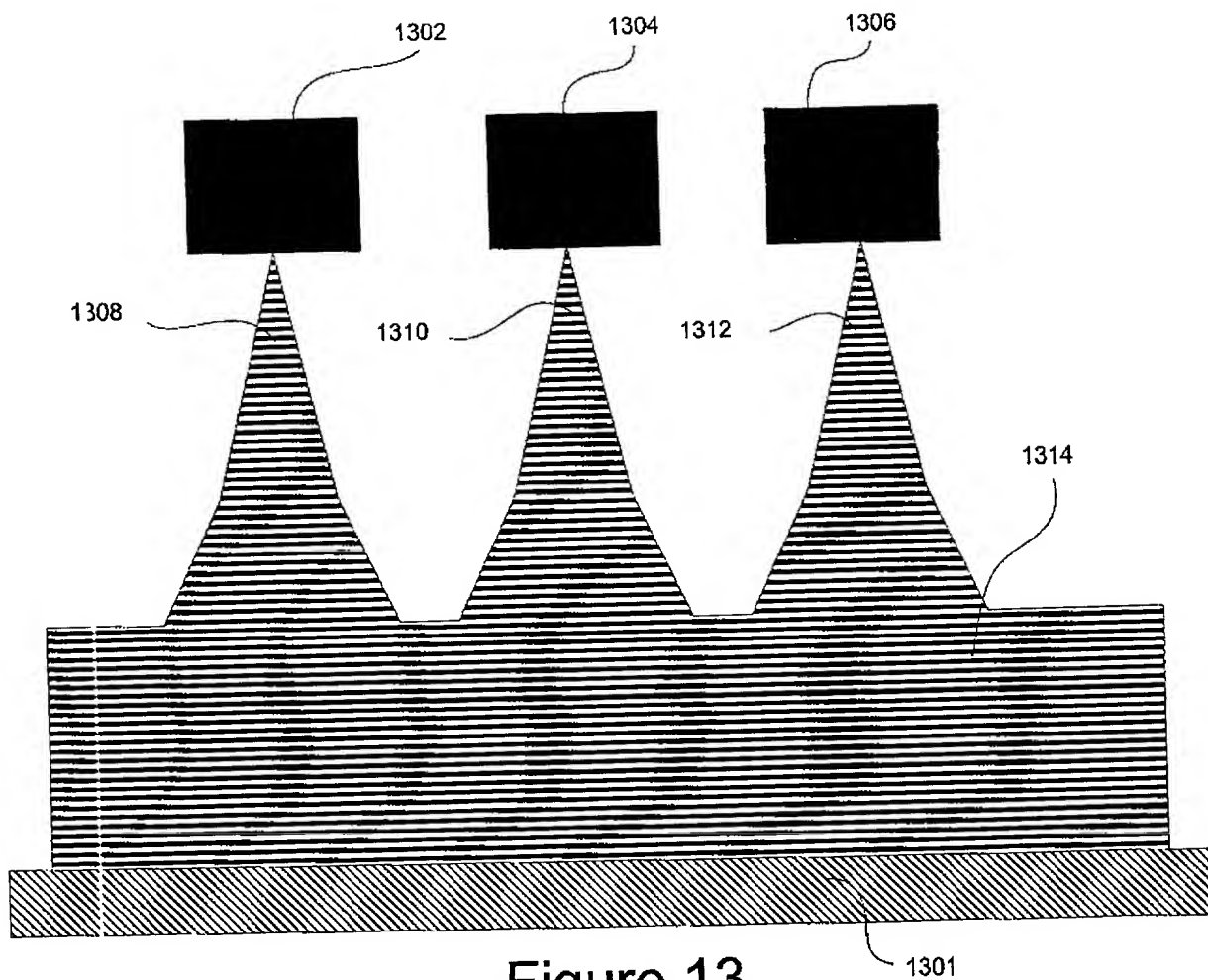


Figure 12



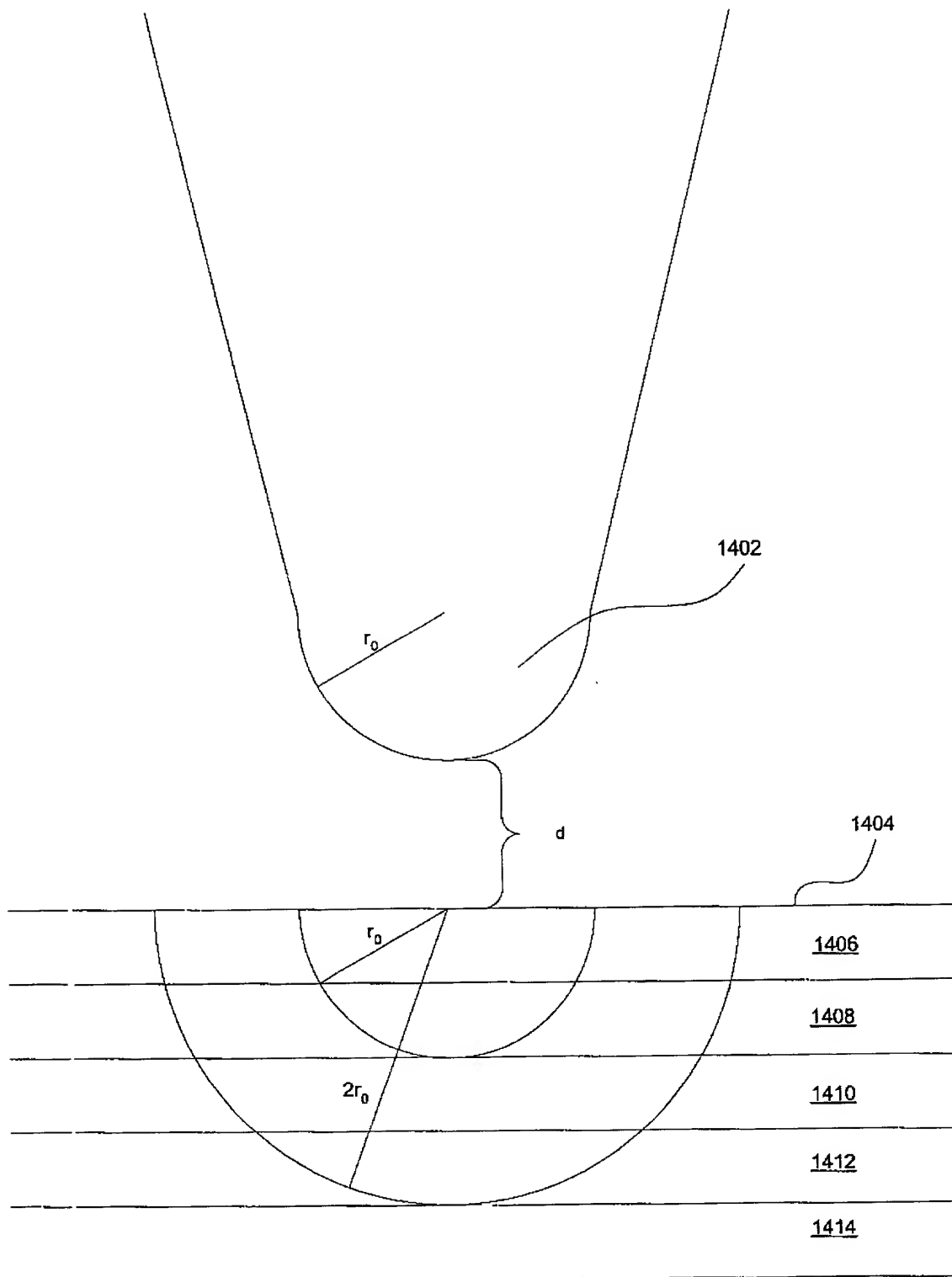
**Figure 13**

Ghoshal

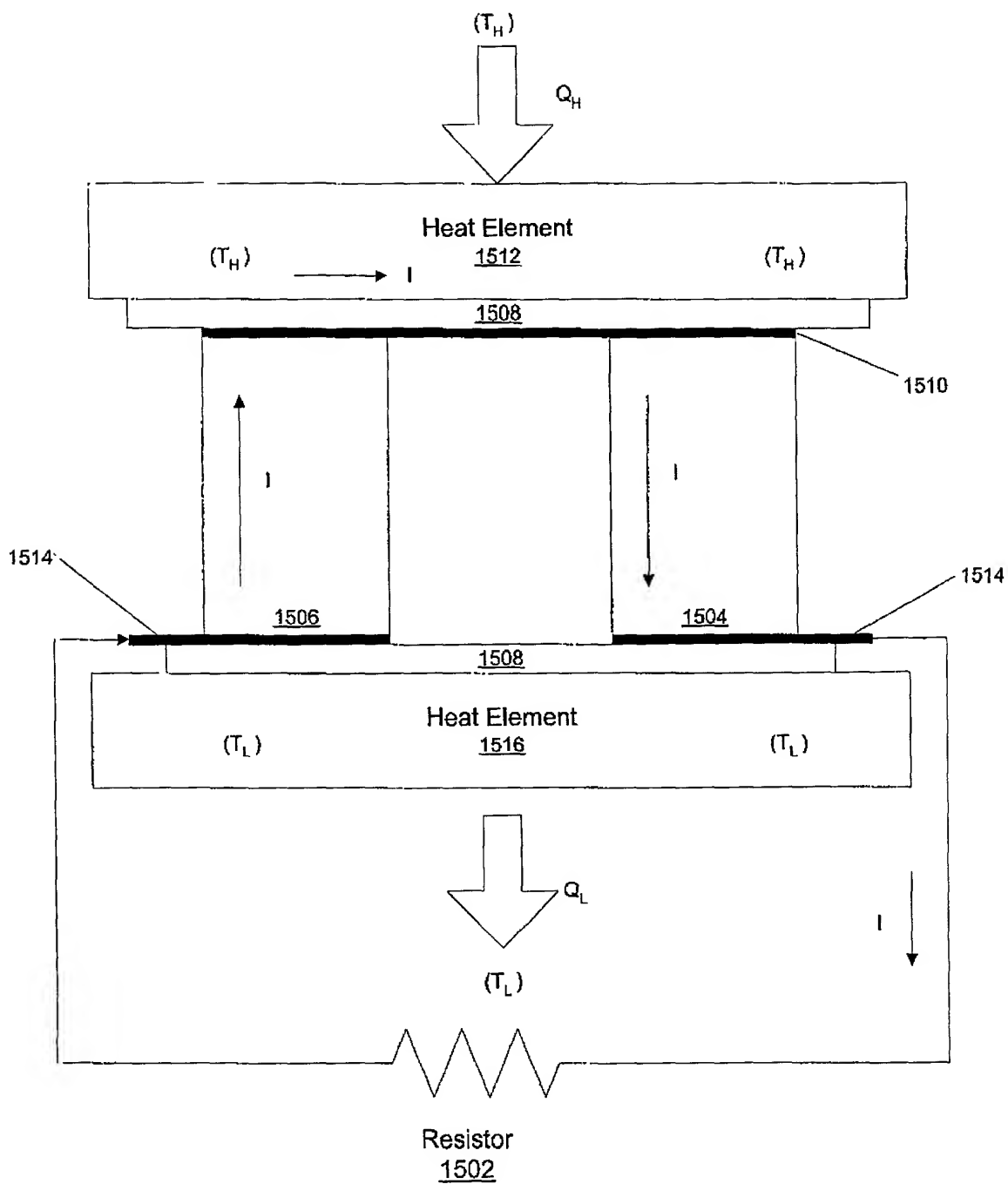
AUS920010314US1

Integrated Quantum Cold Point Coolers

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**Figure 14**



1500  
Figure 15

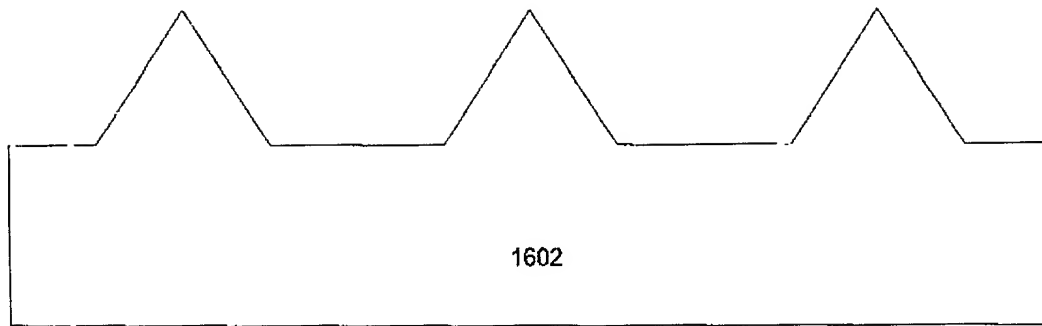


Figure 16A

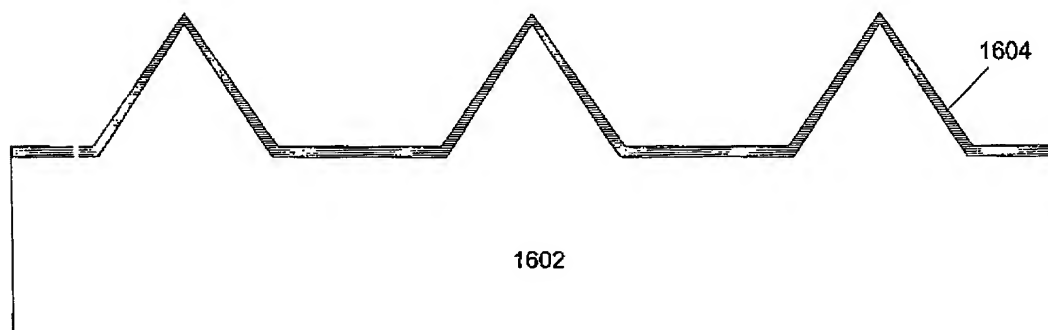


Figure 16B

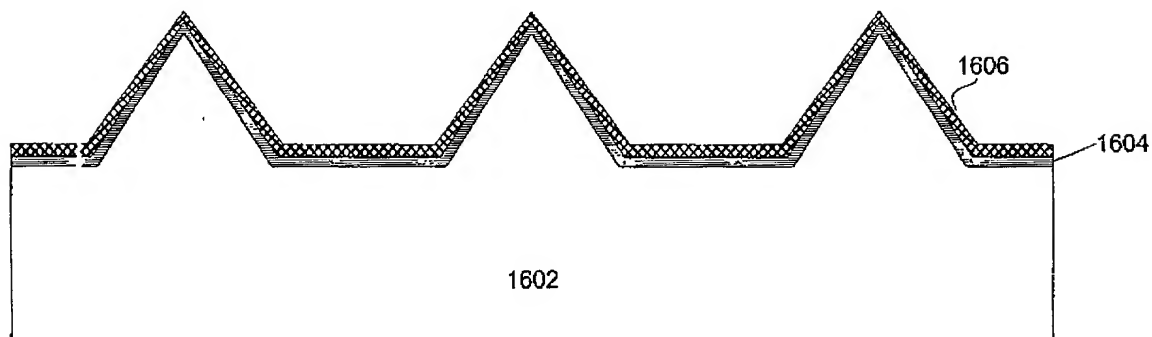


Figure 16C

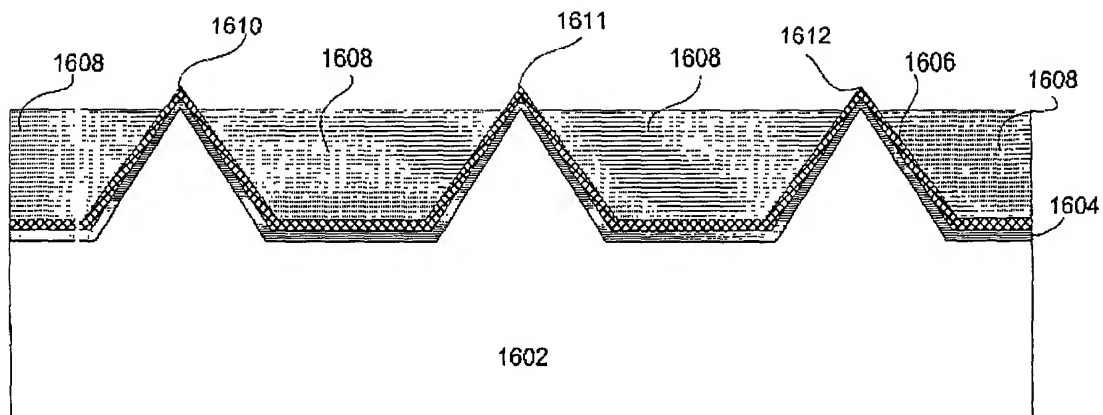


Figure 16D

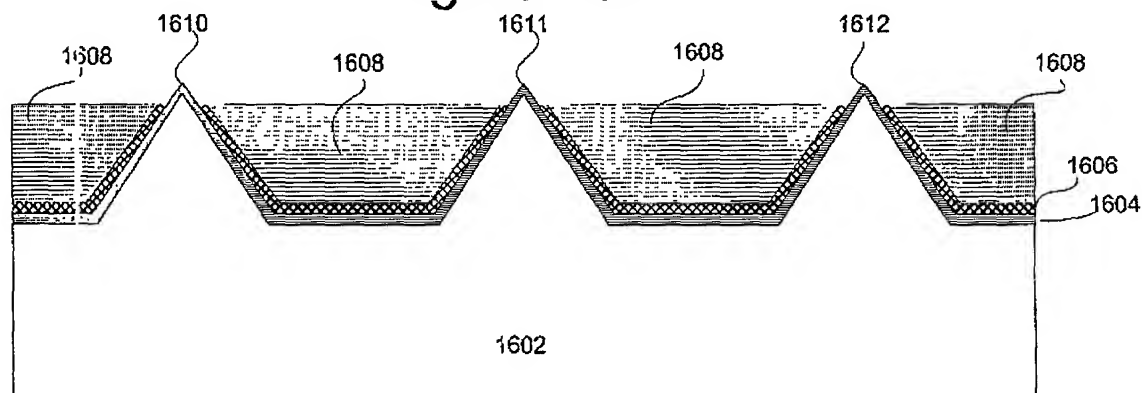


Figure 16E

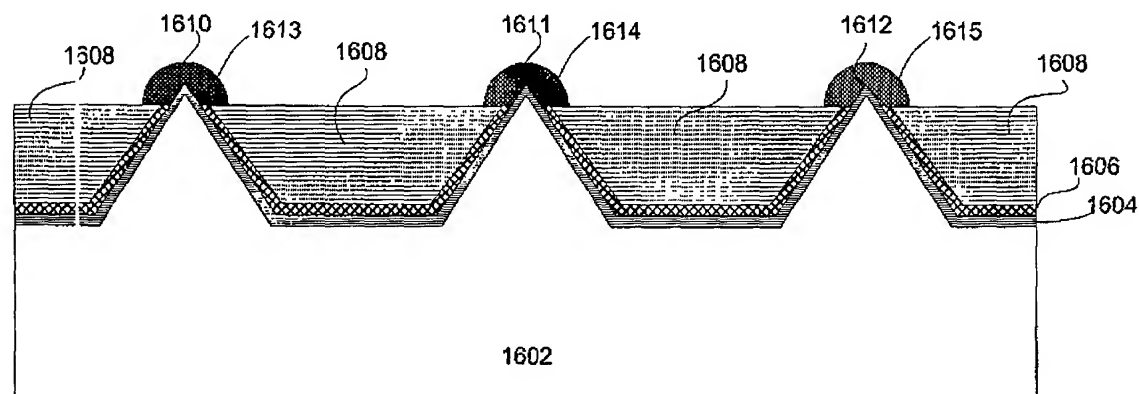


Figure 16F

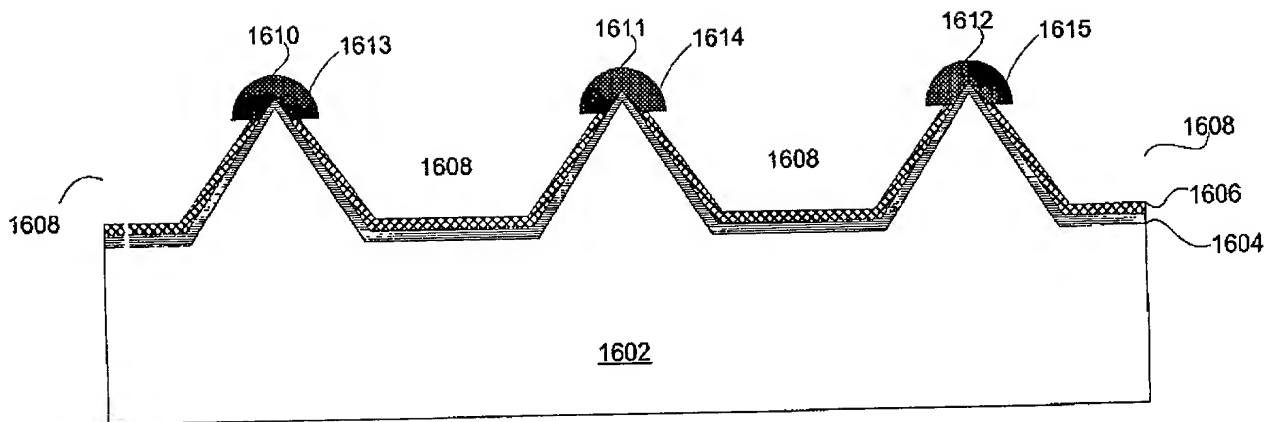


Figure 16G

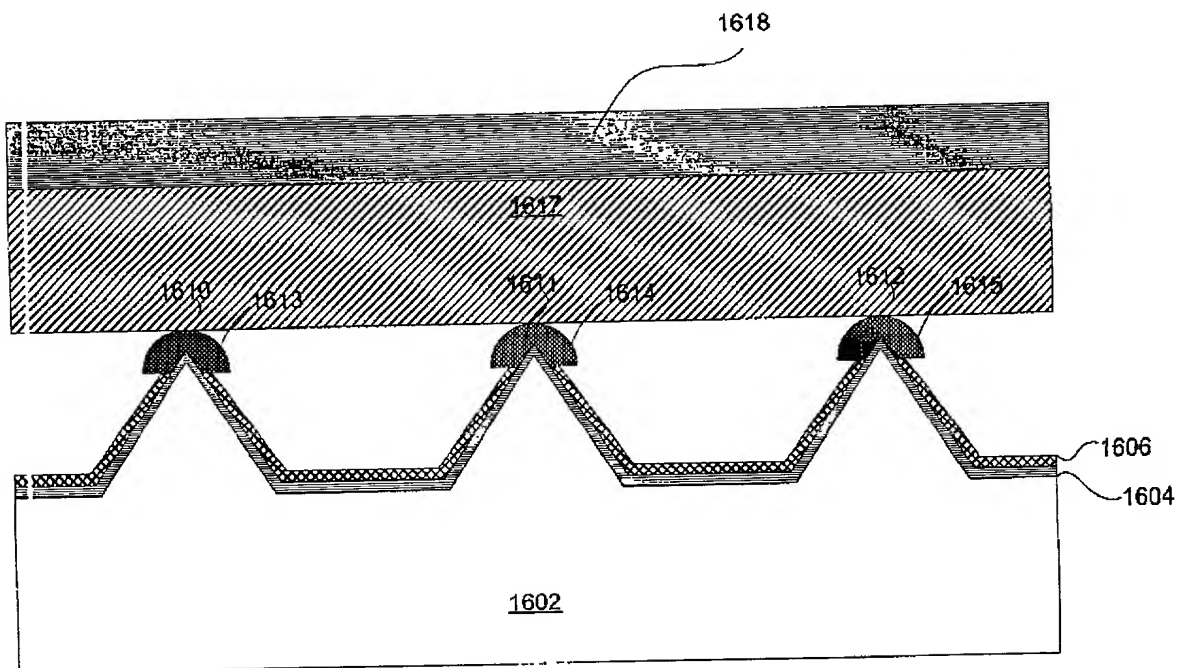


Figure 16H

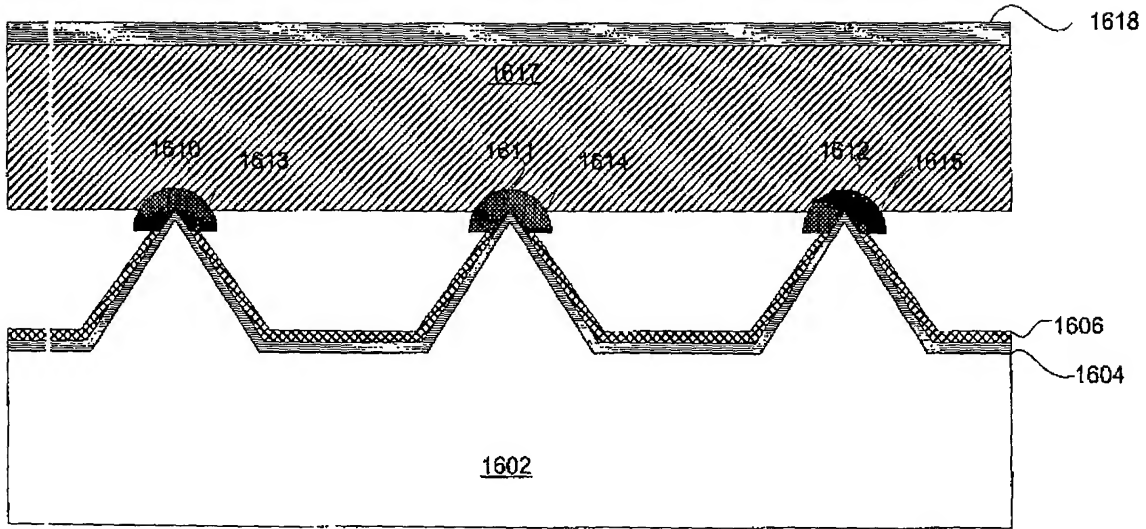


Figure 16I

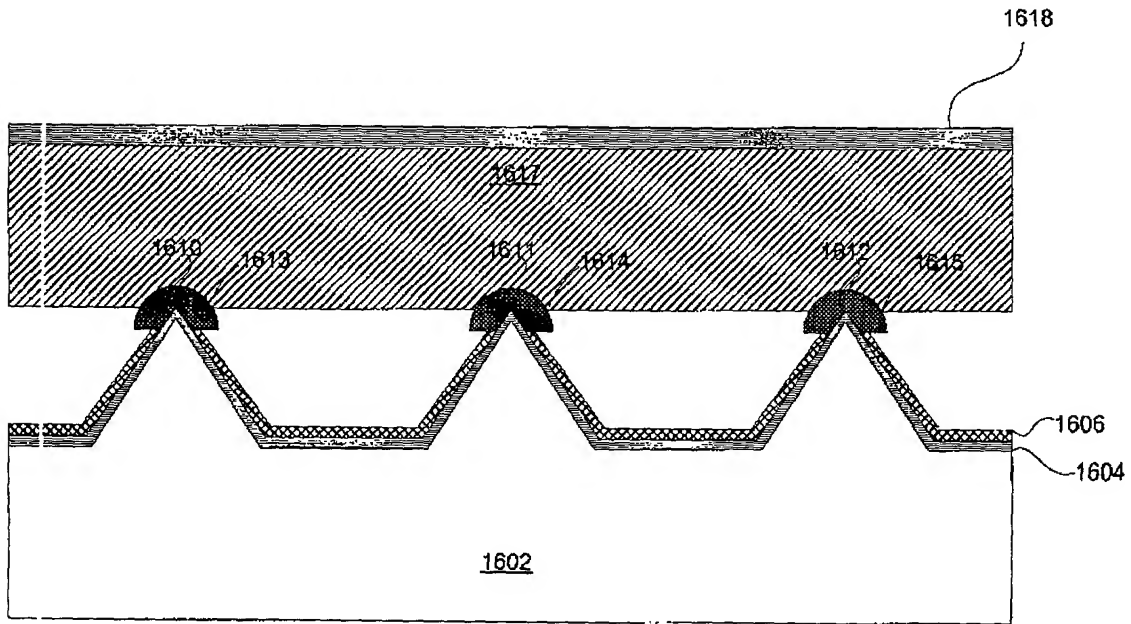


Figure 16J